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GLOBAL ECO-MANAGEMENT AND INTERNATIONAL ORGANIZATIONS: THE STOCKHOLM CONFERENCE AND PROBLEMS OF COOPERATION

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In a very real sense, the earth we inhabit is a closed system. This was well expressed by the late Adlai Stevenson in his final address to the Economic and Social Council of the United Nations when he said: "We travel together, passengers on a little spaceship, dependent on its vulnerable resources of air and soil; all committed for our safety to its security and peace; preserved from annihilation only by the care, the work, and I will say the love we give our fragile craft."¹ However, if one surveys the present ecological plight of planet earth, the "love" Mr. Stevenson spoke of seems to have paled into mere political rhetoric.

To be sure, the ecological crisis is patently a global phenomenon. Its effects honor no political boundaries.² Thus, the environment is, at once, both the most challenging and the most international issue confronting the world community today. With this realization comes the threefold purpose of this paper: to briefly analyze the nature of the environmental crisis, to evaluate international machinery presently available for implementing restorative action, and to point out conflicting world priorities that are hindering genuine international environmental cooperation.

THE NATURE OF THE ENVIRONMENTAL CRISIS

If today's growth is a product of the past and the heritage of the future, the future looks bleak indeed. The earth's human population is now growing at an exponential rate of 2.5 percent each year, or a doubling time of less than 33 years.³ Essentially, what this means is that the present 3.7 billion people will multiply to more than 7

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1. 13 U.N. ECOSOC 90.

2. For example, in 1968 violent rains and winds in England deposited airborne red silt from the Sahara. Wolman, *Pollution as an International Issue*, 47 Foreign Affairs 175 (1968). Another example is Norway's and Sweden's distress over "black snow" falling on their territories from the Ruhr Valley and Great Britain. Lee, *Pollution Defies Europe's Boundaries*, N.Y. Times, January 11, 1970, at 24, col. 1.

3. B. Ward & R. Dubos, *Only One Earth* 149 (1972).

billion by the year 2000. If the trend were to continue, by 2050 the figure would rise to over 28 billion.⁴

The "population explosion" has given rise to growing demands for increased goods and services. Consequently, industry has expanded exponentially at a world average of seven percent per year.⁵ Increased consumer wants (demand) precipitate greater industrial output (supply). However, implicit in this process is the necessary utilization of power resources for energy and mineral resources for finished goods. Thus, with increasing industrial output comes the concomitant depletion of natural resources.⁶

A positive result of techno-industrial growth has been the novel, more productive techniques introduced into the agricultural sector. As population grows exponentially, so must food supplies to feed hungry mouths. These new techniques, appropriately labeled "The Green Revolution," promised, in the early stages of their implementation (1948-1954), to meet the impending world hunger crisis.⁷ However, the primary adoptors of the new hybrid strains of wheat and rice introduced in Asia and Latin America were the large landowners. Furthermore, in the conversion process, mechanized labor replaced human workers. The disheartening result has been a massive displacement of agrarian laborers and a forced migration to the already crowded urban areas.⁸ Moreover, while total world food production may have increased, per capita food production has actually declined in recent years.⁹

Agricultural production has two other crucial, but subtle, impacts upon the human environment. First, the hybrid species of "The Green Revolution" require more intensive concentrations of pesticides and fertilizers to sustain better crop yields. All might seem well and good until it is realized that precipitation causes these chemicals to run off into proximate water-bodies, or to be percolated through the subsoil into subterranean rivers which flow to the open sea. The results are obvious: a heightened level of pollution output and the leeching out of natural soil nutrients, making further agricultural production less in both quantity and quality.¹⁰ Secondly, there is a

4. *Id.* at 149-50.

5. D. Meadows et al., *The Limits of Growth* 41 (1972).

6. *Id.* at 55 et seq. See also C. Park, Jr., *Affluence in Jeopardy: Minerals and the Political economy* 326-37 (1968).

7. Ward & Dubos, *supra* note 3, at 157.

8. For an interesting comparison, see L. Brown, *Seeds of Change: The Green Revolution and Development in the 1970's* (1970); W. Paddock & P. Paddock, *Famine-1975! America's Decision: Who Will Survive* (1967).

9. P. Ehrlich & A. Ehrlich, *Population/Resources/Environment*, 109-13 (1970).

10. The effects of agricultural run-off are well told in R. Carson, *Silent Spring* (1962), especially ch. 9, *Rivers of Death*.

negative relationship between agricultural production and available land area. The more land used to raise crops, the less land available for human occupation. It should be noted that this same relationship is evidenced by industrial expansion. The more land used for factories and manufacturing concerns, the less living space there is available.

Perhaps the most visible impact of industrial growth has been the chemical overload of the earth's ecosystem. Consider these ominous examples: In December 1952, the "Black Fog" struck London, bringing the city to a standstill, and causing 4000 deaths in four days.¹¹ A valid concern of scientists is "the greenhouse effect" resulting from an estimated 6 billion tons of carbon dioxide emitted each year.¹² This solar shielding by a "nonconductive blanket" of carbon dioxide could prevent the earth's heat from escaping, thus heating the atmosphere—with the baneful consequences of melting the polar ice caps and flooding the earth.¹³ Conversely, some scientists see the opposite peril stemming from the same CO₂ insulation; i.e., a new ice age, brought on by the sun's heat being screened out.¹⁴ La Mont Cole, a Cornell University ecologist, estimates that more than 500,000 different chemical compounds per year are put into the air, and most of these find their way to the oceans.¹⁵ Mercury, from agricultural fungicides, enters the oceans at a rate of 4,000 to 5,000 tons per year.¹⁶ Current estimates of leakage and spillage from ocean transport of oil are calculated as .1 percent of the total transported volume, or a minimum of 1,000,000 tons yearly.¹⁷ Finally, the horror of man's ecological ignorance was seen in 1967 when the European Nuclear Energy Agency dumped 35,800 barrels containing 10,900 tons of radioactive wastes into the North Atlantic.

It should be plainly evident that pollution has a negative impact upon the physical environment.¹⁸ Effluent discharges, radioactive wastes, human garbage, and toxic gases—all reduce the quality of our

11. D. Carr, *The Breath of Life* 45 (1970).

12. R. Falk, *This Endangered Planet* 198 (1971).

13. *Id.*

14. *Id.* See also Sellers, *A Global Climatic Model Based on the Energy Balance of the Earth-Atmosphere System*, 8 *J. Applied Meteorology* 392 (1969).

15. Falk, *supra* note 12, at 204.

16. E. Goldberg, *The Chemical Invasion of the Oceans* 3 (unpublished paper in the University of Virginia Library).

17. Falk, *supra* note 12, at 205. Max Blumer has estimated "hydrocarbon influx" to the oceans to be as great as 10 million tons per year: *Oil Contamination and the Living Resources of the Sea*, FAO Technical Conference on Marine Pollution and Its Effects on Living Resources and Fishing. (Rome, Ms. MP/70/R-1).

18. Slouka, *International Environmental Controls in the Scientific Age*, in Law, Institutions, and the Global Environment 229 (J. Hargrove ed. 1972).

life-support system, as well as the quantity of available habitable regions.

A final point should be made regarding the availability of land area. The earth's spacial dimensions are finite. As the numbers of humanity increase, the per capita room for habitation decreases. What occurs, then, might be called a "crowding multiplier." It has been amply demonstrated in manifold studies that such crowding produces severe stress on the human condition—both physically and psychologically.¹⁹ Granted, this process may go undetected for a long period of time before an overt response is forthcoming, but its impact is a real one nonetheless.

Viewed as a whole, the international system's environmental crisis is one of decision, resolution, and implementation. If left unattended and allowed to worsen, the ominous result could be severe disruption of the international community.²⁰ One only has to witness the droughts in Northern Africa, or the famines in Monsoon Asia, or the depletion of petroleum reserves in the United States, or the crowding in India to realize that international conflict might appear more palatable to some national elites than the inevitable fate of ecocatastrophe. In the light of this possibility, as well as the complexity and interdependence of environmental crisis areas, the question now to be answered is how best to effect acceptable solutions through the legal framework of governmental institutions.

TRANSNATIONAL STRUCTURES FOR ECO-MANAGEMENT

Despite advocacy in recent years for the creation of a new independent international agency to serve as a global environmental monitor,²¹ this awesome responsibility has been undertaken by the United Nations. In 1968, a proposal by Sweden²² placed the term "human environment" on the Economic and Social Council's agenda,

19. See, Calhoun, *The Social Aspects of Population Dynamics*, in *Environmental Insight* 180 (R. Clute ed. 1971); Cassel, *Health Consequences of Population Density and Crowding*, in *Rapid Population Growth: Consequences and Policy Implications* (R. Revelle ed. 1971); and Ehrlich & Freedman, *Population, Crowding and Human Behavior*, 50 *New Scientist* 10 (1971).

20. See Choucri & North, *Dynamics of International Conflict: Some Policy Implications of Population, Resources and Technology*, 24 *World Politics* 80 (Supp. 1972); Clemans, *Ecology and International Relations*, 28 *Int'l J.* 1 (1972).

21. E.g., Kennan, *To Prevent a World Wasteland: A Proposal*, 48 *Foreign Affairs* 401 (1970). Cf. Bleicher, *An Overview of International Environmental Regulation*, 2 *Ecology L.Q.* 1 (1972), and Fleischer, *An International Convention on Environment Cooperation Among Nations: Proposed Draft, Policies and Goals*, 7 *Texas Int'l L.J.* 73 (1971).

22. ECOSOC Res. 1346, 45 U.N. ECOSOC, Supp. 1, at 8.

thereby initiating the administrative action which culminated in the United Nations Conference on the Human Environment.²³

The Conference on the Human Environment convened in Stockholm, Sweden, June 5-12, 1972. During that time delegates from 113 nations, 21 U.N. agencies, and 16 intergovernmental organizations,²⁴ as well as 258 nongovernmental organization (NGO) observers, were in attendance.²⁵ The productive efforts at Stockholm resulted in 109 substantive recommendations aimed at establishing environmental guidelines for national governments and international agencies.²⁶ These policy recommendations were formulated in three committees, each concerned with two special areas of concern: Committee I dealt with Human Settlements and Educational-Informational Aspects; Committee II made proposals for Natural Resources Management and Environment and Development; and Committee III handled Organizational Implications and the Identification and Control of Pollutants.²⁷

The resultant recommendations, subsequently called "the Action Plan," encompassed three objectives: restoration, preservation, and prevention. There is to be a global eco-assessment program appropriately labeled "Earthwatch." Operation "Earthwatch" will identify potential problem areas, ascertain their severity, and if need be, signal impending crises.²⁸ Secondly, the Action Plan will aid in setting up managerial facilities to ferret out pertinent data used in constructing eco-standards. Third, supporting measures, *i.e.*, education, public information, environmental training, and financial arrangements, are to be critically analyzed and activated as soon as feasible.²⁹

The integrational framework of the Action Plan is presented below:³⁰

23. Report of the United Nations Conference on the Human Environment held at Stockholm, 5-16 June 1972. U.N. Doc. A/Conf. 48 (1972). (Hereinafter referred to as U.N. Doc. A/Conf. 48).

24. List of Participants, U.N. Doc. A/Conf. 48/Inf. 6 (1972).

25. List of NGO Observers, U.N. Doc. A/Conf. 48/Inf. 6 (1972).

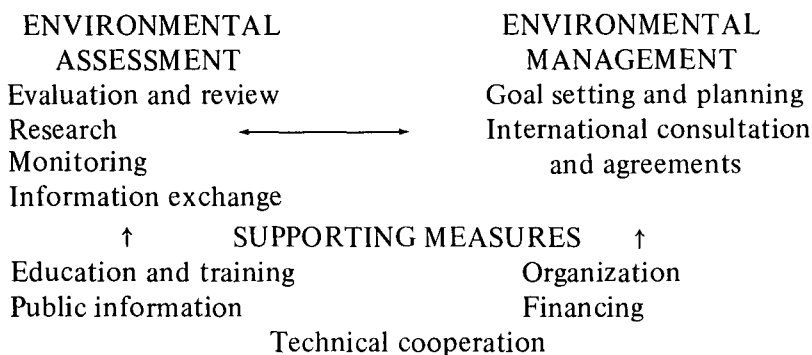
26. Another product of the conference was The Declaration on the Human Environment. Admittedly, this lofty document contains many political overtones, especially since it greatly reflects the priorities of the lesser developed countries. Even so, the purpose of its twenty-six principles is "to inspire the peoples of the world in the preservation and enhancement of the human environment." U.N. Doc. A/Conf. 48/14. See also Sohn, *The Stockholm Declaration on the Human Environment*, 14 Harv. Int'l L.J. 423 (1973), and text accompanying notes 42-52, *infra*.

27. For a summary of the committees' work in these subject areas, see U.N. Doc. A/Conf. 48, *supra* note 23, at 14, 95-110.

28. U.N. Doc. A/Conf. 48/5, at 28.

29. U.N. Doc. A/Conf. 48/14, at 70.

30. Diagram reprinted from U.N. Doc. A/Conf. 48/5, at 27.



To facilitate international efforts in implementing the Action Plan, a modest new structure composed of several bodies was created within the United Nations.³¹ Essentially, its primary function is to coordinate efforts between the related United Nations' agencies and individual national governments to gather data, to monitor the ecosystem, and to formulate appropriate standards aimed at halting environmental deterioration on a global basis.

An Executive Director, Maurice Strong of Canada, was appointed by the Secretary General with the approval of the General Assembly. His duties are two-fold: to serve as a liaison between the General Assembly and the Environmental Secretariat and to administer the Environmental Fund.³²

A small Environmental Secretariat, staffed by sixteen members, is the center for environmental action and coordination with the United Nations system. It will be located in Nairobi, Kenya,³³ and has the responsibility of issuing reports on progress in environmental matters to the General Assembly.

There is to be a fifty-four member Governing Council for Environmental Programs, elected every three years by the Assembly. This is the primary organ for intergovernmental cooperation, and it will issue a report annually to both the Economic and Social Council and the General Assembly. A great deal of the Action Plan's success rests upon this structure because it will coordinate and direct the United

31. A slight modification was made by the General Assembly in reducing the staff of the Secretariat from the Conference's proposal of 45 to a working group of 16. The Report on World Affairs from October 1 to December 31, 1972, 53 U.N. GAOR 239 (1973).

32. U.N. Doc. A/Conf. 48/14, at 62-63.

33. G.A. Res. 3004, United Nations Environment Programme, 27 U.N. GAOR Environment Supp. 9 (February 1973). The United States was among the nations to strenuously oppose this resolution on the grounds that separation from the New York headquarters would boost location expenditures from \$1.4 million to \$2.3 million, as well as hamper coordination efforts with the specialized agencies. N.Y. Times, Nov. 11, 1972, at 4, col. 3; *id.* Nov. 15, 1972, at 46, col. 2. However, final vote on the resolution was 128-0.

Nations environmental programs with those efforts by various nation-states.³⁴ An essential facet of the approved U.N. organizational structure is the Environment Fund, originally proposed by the United States. A \$100 million target for the first five years (with the United States assuming forty percent of the obligated costs) was set, and preliminary allocations proposed in the areas of pollution control, the "Earthwatch" monitoring-research scheme, training, information interchange, and development policies.³⁵ Finally, an Environment Coordination Board was established under the aegis of the Administrative Committee on Coordination. Its primary function is to supervise inter-agency efforts so as to avoid wasteful duplication and unneeded expense.³⁶

The machinery adopted at Stockholm was an important step toward global cooperation to alleviate the environmental crisis. However, just as important were the conflicting values and disparate priorities demonstrated there, since they mirror the genuine possibilities of achieving sound eco-management.

THE PROBLEMS OF ECO-MANAGEMENT

On the eve of the Stockholm Conference, an eminent environmentalist posited three general conclusions about mobilizing international resources to protect the biosphere:

First, the structure of international cooperation thus far developed has been inadequate to arrest the deterioration of the environment. Second, the inadequacy of the structure is largely the consequence of indiscriminate deference to the "sovereign" rights of nations—as interpreted by national governments. Third, the concepts guiding national development have tended to be narrowly economic, failing to take account of the full range of human needs, and especially of the ecological requirements for a self-renewing biosphere.³⁷

These three issues, economic development, securing coordinated international machinery, and national sovereignty, constitute the basic impediments to world ecological cooperation. In the context of the Stockholm Conference proceedings, the statement of these issues emphasizes that not all nations perceive "environmental problems" in the same manner, nor are all willing to make equal sacrifices to reach viable solutions. At Stockholm, as in the present international

34. U.N. Doc. A/Conf. 48/8, at 62.

35. At this writing, nearly \$50 million has been pledged by the global community, including the United States commitment for its contribution of \$40 million (40%).

36. U.N. Doc. A/Conf. 48/8, at 62.

37. L. Caldwell, *In Defense of Earth: International Protection of the Biosphere* 145 (1972).

system, the issue which pervaded most of the discussion was Development vs. Environment.

A. Development vs. Environmental Preservation

The international system is not only separated by an East-West partition of ideological world views, but there is also a North-South economic tier of nations as well. It is this latter division that makes clear the basic goal-value conflict between developmental priorities and environmental preservation.

The technologically advanced nations (the "Northern tier," "developed," "rich," or "have" nations) view the environmental crisis in terms of pollution problems, resource management, and endangered species protection. The preponderant ecological question confronting the nations which have already attained a high material standard of living (and seriously degraded the natural environment in the process) is how much higher prices and taxes must be set in order to pay for the long-term advantages of restoring the "quality of life."³⁸ Predicated upon their past ecological myopia, the "have" nations perceive accelerated industrial growth and mismanagement of resource allocations as the roots of the environmental crisis. Consequently, they favor long range planning with adequate environmental safeguards as requisites for the "have-not" nations' development schedules.³⁹

The emerging nations (the "Southern tier," "lesser developed," "poor," or "have-not" nations) perceive the environmental crisis radically differently. Because they lack great industrial capacity, chemical pollution is not yet a primary problem. For millions of people in Latin America, Africa, and Asia, life remains a harsh and exhausting struggle for survival. Because of this cruel endurance the leaders of the "poor" nations see rapid industrialization and development of all available resources as the panacea for socio-economic misery. In these developing nations, the Commission to Study the Organization of Peace recently observed:

Anxiety over unbalancing or even destroying the ecosystem cannot supersede the immediate demand for food and shelter or the dissatisfaction with endless drudgery, isolation, and sickness. Urban congestion, smog and noise count little to a man in relentless search

38. Commission to Study the Organization of Peace, *The United Nations and the Human Environment* Twenty Second Report 23 (1972).

39. Castro, *Environment and Development: The Case of the Developing Countries*, in *World Eco-Crises: International Organizations in Response* 23 (D. Kay & E. Skolnikoff eds. 1972).

of his next meal, a dry place to sleep, and work that will bring him and his family a few amenities.⁴⁰

Therefore, to procrastinate in the development of "poor" countries for the sake of conservation or long range planning is, for them, to perpetuate despair and futility.⁴¹

The significance which these conflicting value priorities hold in formulating (or inhibiting) environmental policy is well-illustrated in two matters taken up in the preparatory work for the Stockholm Conference: The Declaration on the Human Environment and the conflict between development and environment. Divergent viewpoints between the "rich" and the "poor" nations became apparent in the exchanges over the proposed scope of the Declaration during the Preparatory Committee's initial meetings. In the second session report, the Preparatory Committee mildly advocated that a "particular reference" for "the protection of the interests of the developing countries" would be "useful" to include in the Declaration.⁴²

The first draft of the Declaration then went to the Intergovernmental Working Group (IWG), where it met with some harsh criticism.⁴³ As a result, the Declaration was redrafted in such a manner that of twenty principles, nine specifically alluded to economic development or the needs of the lesser developed countries.⁴⁴ As noted in the subsequent Preparatory Committee's report, the Draft Declaration emerged from the committee as "a realistic attempt to reconcile different groups and interests."⁴⁵

The Declaration's formal adoption was threatened when it was placed before the Conference, but it was ultimately modified to form

40. Commission to Study the Organization of Peace, *supra* note 38, at 23.

41. This position was forcefully expressed by Prime Minister Indira Gandhi when she declared, "Environmental problems of developing countries are not the side effects of excessive industrialization, but reflect the inadequacy of development. . . . Are not poverty and need the greatest polluters?" Indira Gandhi, *The Unfinished Revolution*, Address before the United Nations Conference on the Human Environment at Stockholm, Sweden, 6 June 1972, in 27 *Bull. of Atomic Scientists* 361 (1972). See also *The Environmental Future* 425-472 (N. Polunin ed. 1972), especially Gaekwad, *A Viewpoint From a Developing Country*, *id.*, at 445.

42. Preparatory Comm. for the UN Conference on the Human Environment, Report U.N. Doc. A/Conf. 48/PC/9, at 16 (1971).

43. Brazil expressed the developing countries' sentiment when it argued that the Declaration draft "was 'anti-developmental' and merely conservationist in nature, and therefore unsatisfactory." Quoted in Robinson, *Problems of Definition and Scope*, in Law, Institutions, and the Global Environment 83 (J. Hargrove ed. 1972).

44. Preparatory Comm. for the U.N. Conference on the Human Environment, Draft Resolution on the Human Environment, U.N. Doc. A/Conf. 48/4 (1972).

45. Preparatory Comm. for the U.N. Conference on the Human Environment, Report on its Fourth Session, U.N. Doc. A/Conf. 48/PC/17 (1972), at 18.

a compromise document between the developing and developed nations. The Chinese delegate Tung Ke proposed a resolution which cleared the way for "a special working group open to all States participating in the Conference"⁴⁶ to partake equally in another redrafting of the Declaration. Ostensibly this was done to ensure a legitimate consensus on the final list of principles approved for adoption.

The upshot of this maneuver was a series of proposals, including suggestions for "massive financial and technical assistance" for the "have-not" countries,⁴⁷ condemnation of *apartheid* practices,⁴⁸ and political requirements for environmental safeguards.⁴⁹ Despite these and some sixteen additional amendments, the Conference finally accepted the Declaration on the Human Environment in the closing hours of its last day.

The end product coming from this Conference-wide exchange was more an "Undeveloped Countries' Political Manifesto" than a universal declaration of environmental rights. Twenty-six principles were approved at the Conference; of these, seventeen related directly to the "developing countries" or economic development.⁵⁰

In short, the Declaration on the Human Environment which emerged from the Conference upholds the goal-values of lesser developed nations to pursue "immediate exploitation of their resources and to resist the idea that they should develop their resources in an environmentally concerned, more expensive manner."⁵¹ Perhaps the primary significance of the Declaration's final composition was to make known "the increasing influence of the developing nations" and their advantages in numerical superiority relative to the developed nations.⁵² Regretfully, resolving the conflict between the "have" and "have-not" countries necessitated producing a document cloaked in ambiguities. Yet, an obvious overall solution can be inferred from the principles adopted: greater techno-financial aid provided by the "have" nations can allow the "have-not" nations the

46. U.N. Doc. A/Conf. 48/14 (1972), at 14.

47. Stockholm Conference *Eco*, June 10, 1972, at 2 (unofficial conference newspaper).

48. Hill, *U.N. Parley Ends by Adopting Guide to Pollution War*, N.Y. Times, June 17, 1972, at 2, col. 4.

49. *Id.* at 2, col. 6. The Stockholm Conference *Eco* wryly reported of these political shufflings: "Tossing the Secretariat's draft Declaration on the Human Environment to the closed Working Group has been like dropping it into a school of piranha." Stockholm Conference *Eco*, June 14, 1972, at 1.

50. See Declaration on the Human Environment, U.N. Doc. A/Conf. 48/14 (1972) (Principles 1, 4, 8-16, 18-21, 23, and 24).

51. Note, *The Stockholm Conference: A Synopsis and Analysis*, 8 Stanford J. Int'l Studies 43 (1973).

52. *Id.*

opportunity for economic development while minimizing damage to the natural environment.

Debate on the conflict between development and environment underscored the disparate environmental priorities held by the developed and developing countries. In the early stages of Conference preparation, the developing countries feared that the forum at Stockholm might evolve into a clearing house for the "rich" nations' specific environmental concerns. That is to say, pollution abatement, resource management, internal population control, and trade restrictions might be imposed without diverting economic and technical resources for developmental needs.⁵³ By mid-1971, the developing nations' fears had sufficiently crystallized to warrant their examination by a panel of experts who met in Founex, Switzerland, under the aegis of the Conference's Secretary General, Maurice Strong.

The resultant report on development and the environment⁵⁴ (The Founex Report) summarized the new nations' fears as follows:

1) fear that the developed nations will create rigorous environmental standards for products traded internationally and generate a "neo-protectionism" excluding nonconforming goods from poor lands; 2) fear that the emphasis on non-polluting technology and recycling may eliminate or reduce demand for some raw materials or agricultural products in which pesticide residues are found; 3) fear that aid for development purposes will be delayed or curtailed if the rich lands focus largely on their own environmental problems; 4) fear that developed lands will unilaterally dictate environmental standards to the developing lands without considering how to relate those standards to the conditions of the developing lands; 5) fear that the developed states will saddle the developing with their own definition of what are proper global environmental concerns.⁵⁵

Recognizing that the developing countries clearly wished "to avoid as far as feasible the mistakes and distortions that have characterized the pattern of development of the industrialized societies," the Founex Report went on to advocate that "development becomes essentially a cure for their (the "poor" nations') major environmental problems."⁵⁶ Essentially, the goals of the Second Development

53. d'Arge & Kneese, *Environmental Quality and International Trade*, in Kay & Skolnikoff, *supra* note 39, at 259.

54. Development and Environment: Report and Working Papers by a Panel of Experts Convened by the Secretary-General of the U.N. Conference on the Human Environment at Founex, Switzerland, June 4-12, 1971, U.N. Doc. A/Conf. 48/10 (1971) (hereinafter cited as Founex Report).

55. *Id.* at 29-33, in Robinson, *supra* note 43, at 48.

56. *Id.*

Decade must be redefined⁵⁷ in order "to attack that dire poverty which is the most important aspect of the problems which afflicts the environment of the majority of mankind."⁵⁸

This theme of development as the solution for those environmental problems related to mass poverty was carried into the Stockholm Conference. It soon became a matter of heated debate, so much so that the *New York Times* observed:

Among the unexpected developments was the bluntness with which the newer nations taxed the advanced countries with prime responsibility for global environmental deterioration, and with an obligation accordingly to make reparations to the "third world" in various forms, from technical assistance in pollution control to special consideration in world trade.⁵⁹

Consequently, the recommendations largely stressed "development" rather than "environment."

A review of the Stockholm recommendations leads to the conclusion that if adequate environmental policies are to be consummated, three important objectives vis-a-vis development must be met: (1) There must be a broader definition of developmental goals other than just mere increase in gross national products; (2) there must be a redefinition of economic progress to insure greater emphasis on income distribution, public health, nutritional standards, housing facilities, and other welfare-oriented public goals for the developing nations; and (3) policy must be integrated with planning so that it is regarded as part of the overall framework of socio-economic development. Obviously, a crucial factor to be considered in meeting these broad objectives is a soundly formulated policy of population control, geared to each nation's needs and wants. Nonetheless, this question was postponed from discussion until the World Population Conference in 1974. This had the effect of making the Stockholm Conference's recommendations premature.

B. The International Machinery

The lack of coordination and centralization characterizing environmentally-concerned international machinery poses a second hindrance to effective global eco-management. The awesome task of promoting world environmental cooperation and providing general

57. Insightful arguments supporting this contention are found in The Secretary General, *Planning and Management of Human Settlements for Environmental Quality*, UN/Conf. 48/6 (1971); L. Pearson, *The Crisis of Development* (1970); and The First U.N. Development Decade and Its Lesson for the 1970's (C. Legum ed. 1970) (especially 71-84).

58. Robinson, *supra* note 43, at 49.

59. Hill, *Sense of Accomplishment Buys Delegates Leaving Ecology Talks*, N.Y. Times, June 18, 1972, at 14, col. 1.

policy guidelines for environmental programs was designated to the newly created Governing Council.⁶⁰ However, in order to accomplish this assignment, major shortcomings must be rectified, especially those inhibiting structural cooperation within the United Nations family itself. These have been extensively analyzed in an authoritative study by Sir Robert Jackson.⁶¹ Generally he states; "the present structure . . . is far too fragmented, and has large areas of overlap which create major problems of co-ordination and an unnecessary degree of bureaucratic complexity."⁶² Further, Jackson concludes that these structural defects "lead to frustration on the part of all those participating in the programme—the developing Member States, the developed Member States, the Specialized Agencies and UNDP—and to complaints that the structure is expensive to operate. . . ."⁶³ Notwithstanding the bureaucratic encumbrances of the present United Nations' structure, it is this international organization which will (and must) play a critical role in eco-managerial services. This is especially true if those economic goals set out by developing nations are to be achieved within environmentally-conscious parameters. Realizing this, the following prescriptive suggestions are made for more effective United Nations' action towards formulating policies that will protect the ecosystem, and at the same time allow for sustained economic improvements by all nations.

Individual national governments must look to the United Nations Economic and Social Council (ECOSOC) and its subsidiary agencies for rational information exchange and evaluation of developmental priorities. This effort can best be served through the four regional economic commissions under the auspices of ECOSOC: the Economic Commission for Europe (ECE), the Economic Commission for Asia and the Far East (ECAFE), the Economic Commission for Latin America (ECLA), and the Economic Commission for Africa (ECA).⁶⁴

Each commission acts within United Nations policies and makes annual reports to ECOSOC. Yet, the efforts of these regional economic commissions should be extended to include special committees to formulate comprehensive programs for environmental problems relative to the priorities in their economic and social

60. See text accompanying note 34, *supra*.

61. 1 & 2 Jackson, A Study of the Capacity of the United Nations Development System (U.N. Doc. DP/5 (1969)).

62. *Id.* at 288.

63. *Id.* at 289.

64. See Bishop & Monro, *The U.N. Regional Economic Commissions and Environmental Problems*, in Kay & Skolnikoff *supra* note 39, at 183.

sectors.⁶⁵ In addition, the commissions should continue to promote regional economic integration through trade organizations⁶⁶ and donor agencies.⁶⁷

The importance of ECOSOC is accented by the realization that the specialized agencies of the United Nations fall under its administrative jurisdiction. These agencies provide the effective dynamics of international environmental cooperation on specific problem-area levels, and for this reason it will be useful to evaluate the administrative resources of each and its relative potential in implementing environmental policy.

The World Health Organization (WHO) occupies an important place in setting environmental policy through its responsibility to promulgate and maintain health regulations. Included among WHO's activities are investigation of population limitation policies, family planning, detrimental aspects of air, soil, and water pollution upon urban communities, and the "right to formulate conventions and make recommendations on virtually any health-related matter."⁶⁸ Recalling the exponential impact of burgeoning population growth upon the eco-system, WHO must work to promote more action programs of birth control and continue research into fertility, demography, and world population trends if social attitudes are to be changed.⁶⁹

The International Labor Organization (ILO) is concerned with upgrading labor standards throughout the world. Since labor conditions are heavily influenced by levels of economic development, the ILO is directly involved with the issues of overdevelopment, misallocation of natural resources, the abridgement of human rights, technical assistance programs, and pollutant impact upon working conditions.

An agency fundamental to any sound environmental policy considerations is the Food and Agricultural Organization (FAO). The swelling numbers of humankind have precipitated a search for new food resources and more productive agricultural techniques. A great portion of FAO's research is devoted to the impact of pollution in

65. *Id.* at 204.

66. Trade organizations stemming from these regional commissions include the European Economic Community, the Latin American Free Trade Association, and the Central American Common Market. J. Plano & R. Riggs, *Forging World Order: The Politics of International Organization* 441 (1967).

67. Regional donor organizations include the Inter-American, African, and Asian Development Banks.

68. Plano & Riggs, *supra* note 66, at 398.

69. For an extensive analysis of WHO's role in formulating population policy, see R. Symonds & M. Carder, *The United Nations and the Population Question, 1945-1970* (1973) (especially at 135-196).

marine fisheries and the potential development of ocean resources as nutritional supplements for a starving world.⁷⁰ FAO will also be instrumental in conducting scientific inquiries into the harmful effects of pesticides upon food commodities and in fostering conservation practices in the use of soil, animal, and forest resources.

The dissemination of information about environmental strategies is largely incorporated into the service functions of the United Nations Educational, Scientific and Cultural Organization (UNESCO). The UNESCO publication program is massive in quantity and highly informative in substance, thereby contributing to "educational exchange, elimination of barriers to the free flow of information, and the improvement of mass communication techniques..."⁷¹ UNESCO's facility in sponsoring interchange among scientists and scholars will be a primary means to acquire statistical data for use in comparative economic evaluations and standard-setting regulations.

The International Development Association (IDA) provides a source for international loans to be designated for economic infrastructure development over an extended period of repayment.⁷² The efforts of IDA, in concert with the International Finance Corporation (IFC) and the International Bank for Reconstruction and Development (IBRD), will allow capital inflow into developing nations' economies at a pace which maintains a balance of growth with compensatory environmental safeguards. Further, the World Bank Group's finance "projects that might have adverse consequences for environment or health are reviewed and studied (including appropriate field investigations) with a view to identifying the nature and dimensions of problems and providing for their solutions."⁷³ Continuation of this policy by international financial organizations will be vital to the success of maintaining the pace of development with eco-management.

The International Civil Aviation Organization (ICAO) plays a subtle, but still important role in global environmental affairs. Since ICAO is primarily concerned with creating civil aviation standards and promoting recommended practices, its attention should be

70. FAO estimates that more than \$86 billion is needed over the next fifteen years to provide food for expected population increases. A summation of this analysis, called the *Indicative World Plan*, is found in Brewer, *U.N. Drafts Agricultural Plan and Puts Cost at \$86-Billion Over Next 15 Years*, N.Y. Times, Nov. 2, 1969, at 25, col. 3.

71. Plano & Riggs, *supra* note 66, at 399.

72. The "soft" loan features of IDA include up to 50 years for repayment, a slow amortization rate (which begins after a ten-year grace period) and a low cost interest rate. See R. Mikesell, *Public International Lending for Development* (1966), and Lee, *Environmental Considerations in Development Finance*, in Kay & Skolnikoff, *supra* note 39, at 171.

73. Lee, *supra* note 72, at 179.

focused upon the impacts air transportation has in the atmospheric environment. This encompasses the areas of noise abatement, sonic booms, and the effects supersonic aircraft might have on the physical condition of the stratosphere.⁷⁴

The World Meteorological Organization (WMO) is expected to perform much of the monitoring activities associated with operation "Earth watch." An international system for meteorological reporting, the World Weather Watch (WWW) was instigated in 1968⁷⁵ and presently utilizes 8,500 participating land stations and 5,500 ocean vessels as observation facilities. Precision in data gathering has been greatly increased through high-speed electronic computers and monitoring satellites. Moreover, this global network is augmented by over 100,000 climatological installations dispersed throughout all nations.⁷⁶ Obviously, WMO's chief import lies in ascertaining air pollution levels and in revising standards to minimize the harm to human resources. Yet, WMO's research and advisory capacity has been broadened to include monitoring of climatic changes, charting the degree of pollutant transport by air currents, investigating the problems of operational hydrology, and developing the Integrated Global Oceans Stations System (IGOSS) to determine marine-polluting agents' impact upon climate modifications.⁷⁷

The responsibility for encouraging international cooperation for preventing oceanic degradation rests in the Inter-Governmental Maritime Consultative Organization (IMCO).⁷⁸ Incidents such as the Torrey Canyon disaster of 1967—branded by one author as "the Hiroshima of ecology"⁷⁹—dramatically emphasize the carelessness and ecological abuse perpetrated upon the shipping lanes. Consequently, IMCO's efforts should continue to be directed towards seeking negotiations that will limit oil discharge from ships and the dumping of harmful wastes into the oceans.⁸⁰

74. See *Our Poisoned Planet: Can We Save It?* 145-158 (U.S. News and World Report, 1970).

75. General Assembly Resolution 1721 C (XVI), December 20, 1961, initiated the WWW plan.

76. Davies, *The Role of the WMO in Environmental Issues*, in Kay & Skolnikoff, *supra* note 39, at 164.

77. *Id.* at 166.

78. See Mensah, *The IMCO Experience*, in Hargrove, *supra* note 43, at 237; Goldie, *Liability for Damage and the Progressive Development of International Law*, 14 Int'l & Comparative L.Q. 1189 (1965); Goldie, *International Principles of Responsibility for Pollution*, 9 Colum. J. Transnat'l L. 283 (1970); and Goldie, *Development of an International Environmental Law—An Appraisal*, in Hargrove, *supra* note 43, at 104.

79. The phrase is Falk's, *supra* note 12, at 284.

80. E.g., International Convention on the Prevention of Pollution of the Sea by Oil, done May 12, 1954, 12 U.S.T. 2989, T.I.A.S. No. 4900, 327 U.N.T.S. 3; International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, adopted

One final United Nations agency deserves mention at this time—the International Atomic Energy Agency (IAEA). Unlike any other specialized U.N. agency, the IAEA is concerned with only a single pollutant—nuclear wastes. In an age when conventional energy sources are being rapidly depleted,⁸¹ nuclear power facilities are being constructed at faster rates on a more widespread scale. Admittedly, nuclear power may prove to be the energy-panacea man is searching for, but one resultant problem must be dealt with: the safe disposal of atomic wastes. Hence, the IAEA's intensive study into radioactive contamination of the atmosphere, oceans, freshwaters, and soil, coupled with upgraded regulatory authority, will be of even greater import in maintaining healthful environmental conditions in the years to come.⁸²

In the context of the respective environmental responsibilities each specialized United Nations agency must perform, one important observation should be made: The success of each agency will depend upon the degree of close collaboration given its sister agencies. In other words, no single agency is self-sufficient in its investigative and regulatory capacity; interagency information exchange will be necessary if the process of environmental restoration (and subsequent preservation) is to be efficaciously carried out. A patent illustration of overlapping agency concerns is seen in the fact that ocean pollution does not occur solely from activities in the marine environs; land runoff and air fallout make substantial waste contributions. Thus, research projects into the phenomenon of marine pollution will be shared by FAO, IAEA, WHO, WMO, as well as IMCO. In line with this consideration, there must be prudential planning in order to avoid duplication of effort and needless expenditure of research facilities. Lastly, whatever spirit of interagency conflict and competition that may now exist must be supplanted by a spirit of cooperation and unity. In the past, rivalry among the agencies in overlapping problem areas has resulted in "a system without a brain," and wasteful inaction.⁸³ Consolidation, coordination, and implementation must be the cornerstones of the specialized agencies' future labors to

Nov. 29, 1969, 9 I.L.M. 25; International Convention on Civil Liability for Oil Pollution Damage, *adopted* Nov. 29, 1969, 9 I.L.M. 45; and London Convention on Prevention of Marine Pollution by Dumping of Wastes and Other Matter, *opened for signature* Dec. 1972, 11 I.L.M. 1291.

81. The Chase Manhattan Bank, *Outlook for Energy in the United States to 1985* (1972).

82. See Gofman & Tamplin, *Nuclear Power, Technology, and Environmental Law*, 2 Environmental L. 57 (1971).

83. For a critical analysis of U.N. interagency dysfunction, see Jackson, *supra* note 61, at 21-22.

establish an acceptable environmental policy for the entire global community.

The United Nations is not the only international organization which is seeking solutions for the environmental crisis. The Council of Europe has directed many activities aimed at coordinating national ecological interests on that continent. Among its undertakings have been the harmonizing of transnational environmental laws, formulating minimum safety standards and practices, creating a European agency for pollution control, and restricting the use of chemical detergents.⁸⁴

The North Atlantic Treaty Organization (NATO), through its Committee on the Challenges of Modern Society (CCMS), has commissioned several pilot projects dealing with air pollution, health services, inland and open water pollution, and the strategy of sound regional development.⁸⁵ The importance of CCMS has been underscored by its research into the intentional discharge of oil and oily wastes into the oceans. A spin-off of this study was the convening of a special CCMS Oil Spills Conference in 1970, which culminated in the recent Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter.⁸⁶

The Organization of African Unity (OAU) has added impetus to the movement among newly emergent African nations to preserve their natural environment. Other international organizations, among them the International Union for the Conservation of Nature and Natural Resources (IUCN), the International Council for Bird Preservation (ICBP), and the International Council of Environmental Law (ICEL) have worked closely with OAU to sponsor international conferences and symposiums⁸⁷ aimed at the conservation, preservation, and wise exploitation of Africa's natural resources.⁸⁸

84. Boisserée, *Chances and Problems of International Agreements on Environmental Pollution*, 12 *Natural Resources J.* 218 (1972), reprinted in *Environmental Policy: Concepts and International Implications* 199 (A. Utton & D. Henning eds. 1973).

85. See, D. Moynihan, *The NATO Committee on the Challenges of Modern Society: Response to a Common Environmental Peril*, 61 *Dep't State Bull.* 416 (1969) (address to the North Atlantic Assembly, October 21, 1969), and J. Huntley, *Man's Environment and the Atlantic Alliance* (1972) (especially appendix A, *A CCMS Chronology*, at 55-57).

86. See text accompanying note 80, *supra*. See also Spielman, *CCMS Tackles the Oil Spills Problem*, *NATO Review*, September/October 1972.

87. Of particular note are: The Symposium on Conservation of Nature and Natural Resources in Modern African States, held at Arusha, Tanganyika, September 1961 (IUCN Pub. New Series No. 1, 1963); The Ecology of Man in the Tropical Environment, Ninth Technical Meeting, Nairobi, Kenya, September 1963 (IUCN Pub. New Series No. 4, 1964); and the International Conference on the Organization of Research and Training in Africa in Relation to the Study, Conservation, and Utilization of Natural Resources at Lagos, Nigeria, July-August 1964 (UNESCO/ECA Pub.).

88. For a historical overview of environmental developments in Africa, see Ogundere,

Three international water commissions are noteworthy for their potential roles in regional environmental policy regulation: The International Commission for the Protection of the Rhine; the Danube Commission; and the International Joint Commission.⁸⁹ Except for the International Joint Commission, these bodies have yet to assert themselves fully.⁹⁰ Nonetheless, it is likely that future environmental developments will necessitate greater use of their judicial facilities, and possibly point up the need for more commissions to supervise other transnational waterways and drainage basins.⁹¹

There are several non-governmental international organizations which maintain an active interest in environmental policy and scientific research. Foremost among these is the International Council of Scientific Unions (ICSU), which has coordinated its efforts with UNESCO to promote international cooperation in the fields of education, natural sciences, and social sciences. As J. Eric Smith, the current president of ICSU, recently posited:

The creation of a close working relationship between the ICSU, the principal nongovernmental association of scientists of a wide but as yet not fully comprehensive range of disciplines, and UNESCO, a support-enabling and powerfully operative intergovernmental agency, has provided the structural basis on which it is becoming possible to develop, through appropriate collaborative linkages, the full potential of scientific involvement with the environmental crisis.⁹²

The nine scientific committees within ICSU⁹³ are all concerned with various aspects of the environmental crisis, and have had great influence in motivating public opinion against environmentally

The Development of International Environmental Law and Policy in Africa, 12 Natural Resources J. 255 (1972), reprinted in Utton & Henning, *supra* note 84, at 236.

89. Member states of the Rhine Commission are Switzerland, the Federal Republic of Germany, France, the Netherlands, and Luxembourg. The Danube Commission includes as parties the USSR, Bulgaria, Hungary, Romania, Czechoslovakia, Yugoslavia, Austria, and the Ukrainian SSR. The International Joint Commission is composed of the United States and Canada. Stein, *The Potential of Regional Organizations in Managing Man's Environment*, in Hargrove, *supra* note 43, at 265.

90. For an evaluation of the IJC's effectiveness, see Bilder, *Controlling Great Lakes Pollution*, in Hargrove, *supra* note 43, at 294.

91. On the international aspects involved in proposing drainage basin regulations, see generally *The Law of International Drainage Basins* (A. Garretson, R. Hayton, & C. Olmstead eds. 1967) and Bourne, *The Development of International Water Resources: The Drainage Basin Approach*, 47 Can. B. Rev. 62 (1969).

92. Smith, *The Role of Special Purpose and Nongovernmental Organizations in the Environmental Crisis*, in Kay & Skolnikoff, *supra* note 39, at 140.

93. The Committee on Space Research (COSPAR); The Scientific Committee on Antarctic Research (SCAR); The Scientific Committee on Oceanic Research (SCOR); The

destructive activities by some national governments.⁹⁴ In addition to the sixteen scientific unions incorporated in the ICSU, the International Union of Nutritional Sciences (IUNS), the International Union for Conservation of Nature and Natural Resources (IUCN), and the International Union of Anthropological and Ethnological Sciences (IUSAE) are prominent special-purpose organizations whose scientific resources provide a necessary contribution to a better understanding of the multifaceted implications of the planetary crisis.⁹⁵

Clearly, a great many international organizations are conducting selected environmental research and experimental projects. Nevertheless, if these fact-finding efforts are to contribute to global solutions for the ecological crisis, they must be pooled, analyzed, and evaluated by a central agency. Ostensibly, this is the function of the newly created United Nations' environmental structure, although it is presently far too early to assess what data-gathering progress has been made.

C. Sovereignty and the International System

Realizing that international organizations are necessarily composed of member states reveals the third obstacle impeding genuine global cooperation: the jealous guarding of national sovereignty.

Since the Peace of Westphalia in 1648, the international system has been composed of independent, self-asserting "nation-states." Each state is autonomous to the extent it can make and execute policies for its own national interest, while supposedly conforming to the broad guidelines offered by international law. Nonetheless, "[n]ational interest, as defined by the heads of governments, has by no means always been consistent with the interests of the governed. It is hardly to be expected that it would be consistent with the protection of the Earth as a whole."⁹⁶ Consequently, the flaunting of sovereignty reflects more national insecurities than political

Scientific Committee on Water Research (COWAR); The Special Committee for the International Biological Program (SCIBP); The Committee on Science and Technology in Developing Countries (COSTED); The Committee on Data for Science and Technology (CODATA); The Advisory Committee on the Application of Science and Technology to Development (ACAST); and The Scientific Committee on Problems of the Environment (SCOPE).

94. On this ability of the ICSU, see Kirgis *Technological Challenge to the Shared Environment: United States Practice* 66 Am. J. Int'l. L. 290 (1972).

95. This is especially so in conducting the International Biological Program (IBP), a worldwide study of biological implications in man's productivity and welfare.

96. Caldwell, *supra* note 37, at 145.

realities.⁹⁷ This can be particularly true in environmental issues where national interests are certain to conflict with one another, resulting in fragmentation of authority and inconsistency of policy.

At Stockholm, sovereignty became manifestly entangled in political issues. The most serious political blemish was the absence of the Soviet Union and other East European nations who boycotted because East Germany was not invited. Further, China and France blatantly opposed and subsequently ignored efforts to suppress nuclear testing which damages the environment, Sweden and China attempted to interject the polemical issue of Vietnam and United States ecocide practices there, and Brazil and Argentina were embroiled over constructing dams on the upper Parana River. So, rather than trying to heal the breach between disparate national interests, the Stockholm Conference became a quasi-proving ground for sovereign priorities and political profiteering.

The Stockholm experience makes clear the changed nature of the international system since 1945 and its impact upon international organizations. Since World War II the number of nation-states has more than doubled. Most of the new nations belong to the "have-not" socio-economic tier and were born with strong nationalistic ambitions. The consequences for international organizations are obvious: larger membership creates greater bureaucratic unmanageability and a more diverse spectrum of wants and needs. It is this conflict among the sovereign interests of many nations that makes an international consensus for environmental preventative/restorative action so difficult to achieve. The international system becomes earmarked by fluctuating authority relationships—each moving according to its own particular goal-values. The resultant effect is structural decentralization and functional impairment of international organizational machinery with long lead times for changes.

One scholar has astutely labeled this world systemic model "‘hybrid-fragmented,’ . . . marked by inconsistency of . . . policies, by grudging and isolated concessions of national sovereignty to the requisites of international coordination and regulation, and limited responses to immediate crises."⁹⁸ Each nation, perceiving the environmental crisis through the prism of its own needs and desires, reacts accordingly vis-a-vis industrial growth and ecological conservation. The manifest danger implicit in these disparate reactions is blindness to the urgent need to deal with an environmental situation

97. C. Yost, *The Insecurity of Nations: International Relations in the Twentieth Century* 276 (1967).

98. S. Fifer, *The International Politics of Ocean Exploitation* 7 (unpublished PhD. dissertation, University of Virginia, 1973).

before it becomes a "crisis." Regretfully, this realization has now come too late. The earth's biosphere is no longer able to regenerate man's destructive manipulations in nature; the ecosystem is in a process of worsening crisis, exacerbated by the reluctance of national elites to work together for viable solutions because they fear compromising their national interests. Therefore, national parochialism and recalcitrance must be overcome by concerted international environmental action which surpasses any reforms an individual nation could hope to achieve. As Lynton Caldwell has suggested: "If nations saw their interests and welfare protected by international action to an extent unattainable by their own unaided efforts, they could more easily dispense with exaggerated interpretations of sovereignty."⁹⁹

CONCLUSIONS

Some important conclusions can be drawn from the above discussion. First, the environmental situation is at once both the most formidable and most international issue today. The crisis is real and complex. Global ecological deterioration consists of several inter-related problem areas, the conditions of which are constantly being aggravated by a complicated concatenation of impinging factors. Population growth, resource depletion, global pollution, food shortages, and societal entropy are not merely distinct crisis areas which can be easily solved one by one. Rather they are interconnected and continue to feed upon one another. It does seem reasonable that the overall root cause may be traced to unrestricted population growth, and it is here that much attention should be concentrated, without losing perspective.¹⁰⁰

The United Nations has taken the lead in constructing a program for environmental management through the creation of new institutions, supplemented by the research facilities of the specialized agencies. There exist regional organizations to better evaluate priorities from an environmental viewpoint and to communicate their recommendations to the respective United Nations organs. Private scientific bodies can add much by furnishing research data and engendering public commitment.

Even so, national governments will continue to be chief executors

99. Caldwell, *supra* note 37, at 145.

100. But see the findings of Meadows, *supra* note 5, especially ch. 5, *The State of Global Equilibrium*, at 156. Regardless of which crisis area is ameliorated, exponential growth in some manner eventually will overshoot the earth's support capacity, resulting in system collapse. It should be noted that this computer approach has engendered heavy criticism by the academic community. For an excellent rejoinder to Meadows, see 5 *Futures: The Journal of Forecasting and Planning* 1 (1973).

of environmental policy and preventive legislation. Some have already taken the initiative¹⁰¹ and their policies should be analyzed and assessed for positive results. Others should be made to realize (through technical assistance programs and international financial arrangements) that ecological priorities must be firmly fixed in their socio-economic developmental plans to ensure adequate measures for the earth's environmental restoration. In essence, "a resolution of uncertainty" must give way to a dedicated international commitment.

The first step towards this goal is the awakening of a global ecological consciousness. To be sure, international legal standards, procedures, and institutions can only be effective if the politicians, the administrators, and the general public are convinced of the importance of protection and consignment. Concurrently, it can be safely said that nation-states form, join, and support international organizations to further their own particular national interests. In return, in so far as international organizations serve national interests, they may affect national policies to some degree. Realization of environmental priorities therefore becomes the keystone to any successful restoration efforts on a global scale.

It is hoped this presentation has contributed towards fostering such a consciousness by revealing the nature of the eco-crisis nexus and some potential implications for international politics, and by pinpointing those international organizations that seem best equipped to formulate adequate solutions. For we have reached an environmental crossroads—a time for deliberate decisionmaking and policy implementation—which necessitates a readjustment of perspectives and priorities of social, economic, and technical existence. Only through this functional approach can national governments and international organizations act in concert to complete the most challenging assignment in history: restoration of the world's ecological fabric in a spirit of moderation, rationality, and a greater sense of justice for all mankind.

101. Most notable is Canada's Arctic Waters Pollution Act, Can. Rev. Stat. c. 2 (1st Supp. 1970). See Bilder, *The Canadian Arctic Waters Pollution Prevention Act: New Stresses on the Law of the Sea*, 69 Mich. L. Rev. 1 (1970), and Dwivedi, *The Canadian Government's Response to Environmental Concern*, 28 Int'l J. 134 (1972-73). Other nations introducing sectorial laws, principally for pollution control, include Great Britain, the United States, France, Italy, and Germany. Caponera, *Towards a New Methodological Approach in Environmental Law*, 12 Natural Resources J. 133, 147 nn. 23-37 (1972), reprinted in Utton & Henning, *supra* note 84, at 114, 128 nn. 27-37.